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die quickly if the temperature reaches 27° C. but that at 23° C. and under it may live a long time.

A series of experiments has been undertaken in this laboratory and a few of the results are given in advance showing how long the organism may live and retain its virulence when dried under various conditions.

#### ALBUMIN-GELATIN BALLS INFECTED WITH PLAGUE CULTURE.

A little ball of sterile absorbent cotton about the size of a pea is soaked with a few drops of a gelatin culture of plague (Djiddah) mixed with egg albumin, and exposed in a Petri dish in the photographic dark room (20° to 23° C.) and the cool chamber (17° to 19° C.).

The little balls soon dry and the gelatin-albumin shrinks to a flaky, dry, hard mass.

From time to time one of the dried balls is taken out, planted in bouillon, and incubated. In case a growth appears the organism is tested on all the media, and on mice.

It was found that the organism lived and remained virulent for mice under these conditions for seventy-five days in the dark room at about 20° to 23° C. and for seventy-five days in the cool chamber at 17° to 19° C. Whether it may live longer will be determined from time to time and reported later on.

#### CRASH INFECTED WITH PLAGUE CULTURE.

In another series of experiments little squares of fabric (crash) were sterilized and inoculated with a three-day-old bouillon culture of the bacillus pestis. One set of these was allowed to dry out in Petri dishes in a dark corner of the laboratory where the temperature ranges from about 20° to 27° C., another set in the cool chamber (17° to 19° C.), and another set in the photographic dark room (20° to 23° C.). The squares were removed at intervals and planted in bouillon and in case a growth appeared it was studied for purity and pathogenicity in media and mice.

The following are some of the results:

##### *Bouillon culture on crash.*

Time.	Laboratory 20° to 27° C.,	Cool chamber, 17° to 19° C.	Dark room, 20° to 23° C.
4 days.....	x	x	x
8 days.....	—	x	x
11 days.....	x	—	—
13 days.....	x	x	x
15 days.....	—	—	x
21 days.....	—	x Killed mouse in two days.	x Killed mouse in two days.
26 days.....	—	—	x Killed mouse in three days.
35 days.....	—	x	x
48 days.....	—	x Killed mouse in three days.	x Killed mouse in two days.

NOTE.—x indicates growth. — indicates no growth.

From this table it appears that the organism died after thirteen days when kept at a temperature which occasionally rose to 27° C.

At a somewhat lower temperature it remained alive and virulent forty-eight days. Whether longer, will be reported upon the completion of the work. This table indicates plainly how sensitive this particular organism is to a very slight difference of temperature.

#### PINE WOOD INFECTED WITH PLAGUE CULTURE.

Another series of tests was made with splinters of pine wood about the size of a match stick. They were sterilized and soaked in a three-day-old bouillon culture of plague and then placed in Petri dishes which were kept in the laboratory (20° to 27° C.), cool chamber (17° to 19° C.), and the dark room (20° to 23° C.), with the following results:

*Pieces of pine wood inoculated with bouillon culture of bacillus pestis.*

Time.	Laboratory.	Cool chamber.	Dark room.	Time.	Laboratory.	Cool chamber.	Dark room.
4 days.....	x	x	x	13 days.....	—	—	—
8 days.....	—	x	x	18 days.....	—	—	—
11 days.....	—	—	x	21 days.....	—	—	—

NOTE.—x indicates growth. — indicates no growth.

The same culture was used to impregnate the pieces of pine wood as was used for the squares of crash in the preceding table, and these two objects thus infected were exposed to precisely the same conditions. It may therefore be assumed that the organism lives a shorter time on the one than on the other.

#### PAPER INFECTED WITH PLAGUE CULTURE.

Another series of tests was made with pieces of filter paper and pieces of glazed (sized) paper. This paper is cut into little squares and sterilized and impregnated in the usual way with a three-day-old bouillon culture of the organism. These pieces were placed in Petri dishes and kept in the desk in my office where the temperature ranges from 20° to 27° C. The results follow:

*Plague culture dried on paper.*

Time.	Filter paper.	Glazed paper.	Time.	Filter paper.	Glazed paper.
4 days.....	x	x	13 days.....	—	—
8 days.....	x	x	18 days.....	—	—
11 days.....	—	—			

NOTE.—x indicates growth. — indicates no growth.

On account of the importance of this subject, a summary of the literature follows:

KITASATO (*a*) found the organism alive after four days when dried on a glass cover slip and kept at 28° to 30° C. It grew after one to thirty-six hours, but not after four days. He used the pus of buboes from

*a* Preliminary notice of the bacillus of bubonic plague, Hongkong, July 7, 1894.